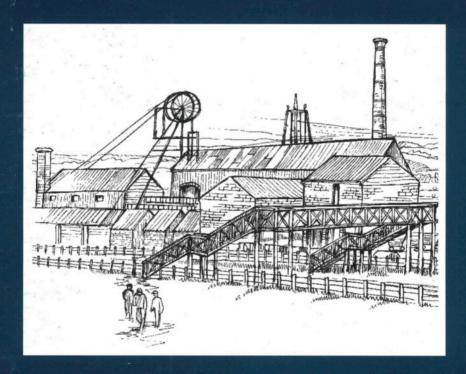
THE BRISTOL COAL INDUSTRY



KEITH RAMSEY

THE BRISTOL BRANCH OF THE HISTORICAL ASSOCIATION LOCAL HISTORY PAMPHLETS

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THE BRISTOL COAL INDUSTRY

Introduction

This study attempts to present a broad picture of the coal industry in Bristol and the surrounding area, concentrating on the period from 1854, when the first official collection of statistics was published, to 1963, when the last colliery in the area closed.

The major obstacle encountered in any attempt to explore the history of the subject is the scarcity of primary source material; apart from colliery plans, hardly any of the papers of the colliery owners or the local trades unions have survived and it is, therefore, impossible to piece together the full story of the industry or to give many of its economic aspects the attention that they deserve. Those records which have survived are sufficient to allow comment, but not extensive enough to form the basis of any in-depth analysis.

What follows is, therefore, somewhat disjointed, a series of sketches which shed some light on a number of aspects of what was once one of Bristol's major industries rather than a full account of its history.

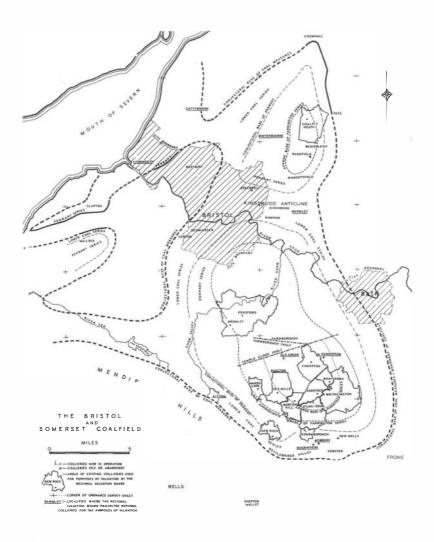
The Coalfield

In 1931, the Coal Mines Reorganisation Commission dismissed the Bristol and Somerset coalfield in the following terms:

'Situated on the southern bank of the Severn estuary, partly in the county of Gloucester and partly in Somerset, are six detached areas of coal measures. These constitute what are commonly known as the Bristol and Somersetshire coal fields. Their total area is estimated at 240 square miles ... on the whole the seams are thin and furnish coal of inferior quality.'

The Ministry of Fuel and Power's *Bristol and Somerset Coalfield Regional Survey Report*, published in 1946 in preparation for the nationalisation of the coal industry, defined the boundaries of the coalfield rather more precisely as

'... extending from Cromhall in the north to the slopes of the Mendip Hills in the south, a distance of about 26 miles, and from the neighbourhood of Bath in the east to Nailsea in the west, about 24 miles.'²



Most published accounts of the industry have dealt with either Bristol or Somerset in isolation, regarding the two as separate entities. Whilst this is, to a certain extent, a valid distinction (there were, for instance, few individuals who owned pits in both districts), it seems to stem from the presence of the border between Somerset and Gloucestershire rather than from any geological factors, and was established for the purposes of official statistics by the 1850s. One consequence of this was that statistics for the Bedminster collieries were included with those for Somerset rather than for the Bristol division of Gloucestershire, despite the fact that some of the Bedminster workings seem to have passed under the Avon to extract coal from beneath Gloucestershire.³

To further complicate matters, the figures for Bristol were often combined with those for Somerset (from 1904 to 1911 they were combined with those for the Forest of Dean to give a single figure for the whole of Gloucestershire) and in the years when this occurred, it is impossible to be certain of the manpower or output of the Bristol district.

The Coalfield before 1854

What may be the earliest reference to the use of coal in the area occurs in the works of the Roman writer Solinus, who wrote an account of the hot springs of Britain in which, apparently referring to Bath, he claimed that '... the foremost of these is dedicated to the goddess Minerva, in whose temple perpetual fires never die away to ashes, but instead turn to stones.' Whatever the truth of this may be, it is known that coal was in use in the area during this period, since it has been found on Roman sites in Camerton and Clapton-in-Gordano in north Somerset. Although no remains of Roman mining activity seem to have been identified, it must be assumed that the coal was dug from local surface outcrops.⁴

The use of coal seems to have died out after the departure of the Romans and there is little further record of mining activity in Britain until the Middle Ages, although documents from this period must be treated with some caution, since the word 'coal' was often used to refer to charcoal. We can, however, be certain that coal was in use in the Bristol area by the thirteenth century, since licences were being issued to dig for it in Kingswood Chase. It seems that, by the sixteenth century, mining was also taking place to the south-east of Bristol, around Brislington, Queen Charlton and Burnet, whilst the first records of mines at Bedminster date from the second half of the seventeenth century.⁵

The rise in the fortunes of the coal industry has been attributed to increased domestic consumption as a result of a price advantage over wood, but it must also be borne in mind that, in the case of Bristol, the rise of industries such as soap making and sugar refining would have

resulted in an increase in demand. Whatever the causes of any increase in demand may have been, the transport of coal to Bristol was, in itself, a large-scale industry by 1675, when some 500 packhorses were employed in moving coal from Kingswood alone.⁶ The trade was thought worthy of note by visitors to the city, such as Daniel Defoe, who remarked that:

'Tis very remarkable, that this city is so plentifully supplied with coals though they are all brought by land carriage, that yet they are generally bought by the inhabitants, laid down at their doors, after the rate of from seven to nine shillings per chaldron.'

Whilst Celia Fiennes reported that, when she passed through Kingswood in 1698, she

"... was met with a great many horses passing and returning loaden with coals dug just thereabout; they give twelve pence a horse load which carryes two bushels ..."

By 1794, the coal industry had grown to such an extent that William Mathews' Bristol directory noted that:

'The advantages arising to the inhabitants from having plenty of coal so near to the City are very great, as well as from its use to families who burn it profusely, and to poor people who are rendered warm and comfortable by it, in the winter, as to the various manufactories of glass, sugar, spirits, iron and brass, in which there is a great consumption of it.'9

Mathews refers to collieries at Bedminster, Ashton, Brislington and Kingswood, the latter providing the largest proportion of the city's supply and being home to so many colliers that it had 'the appearance of being one vast, rural suburb of Bristol.' ¹⁰

A number of historians have attempted, with varying degrees of success, to estimate the output of the British coal industry during the prestatistical era. Although their figures for Bristol and Somerset vary to some extent, there is general agreement that annual output did not reach 100,000 tons until the late seventeenth or early eighteenth century, climbing to somewhere between 400,000 and 500,000 tons by 1800, before reaching 1,050,500 tons, in 1854, the first year for which the actual figure is known. The only separate figures available for the Bristol area are provided by J.U. Nef, who estimated that the annual output of Kingswood Chase in the decade 1551-1560 was 6,000 tons, whilst by 1781-1790 it had risen to 140,000 tons. 11

There is little room for comment on these figures here, except to emphasise that there are no really accurate output figures for the period prior to 1800. The authors of the *Report of the Commissioners Appointed to Inquire into the Several Matters Relating to Coal in the United Kingdom* clearly did not agree with this, however, and in about 1868, as part of their investigation of the resources of the coalfield, they

attempted to calculate the total amount of coal which had already been extracted; the results of their calculations are shown in Table 1.¹² Once again, it is not really possible to comment on the accuracy of their figures, although they may be seen as a reasonably reliable indicator of the relative scale of mining activity in the parishes listed.

Table 1: Quantities of coal worked and unworked in parishes in the Bristol area, as calculated by Prestwich and Anstie

Parish	Coal worked (tons)	Coal unworked (tons)
Bedminster	3,776,587	127,354,300
Bitton Hanham St George St Phillips Stapleton	37,259,158 in total	149,905,113 68,441,800 60,345,775 19,184,350 80,379,200
Brislington	not given	147,003,580
Frampton Cottrell Iron Acton Mangotsfield Pucklechurch Westerleigh	14,851,200 in total	31,414,810 51,148,253 128,065,068 110,405,345 139,553,392
Filton	not given	11,960,375
Frenchay	not given	19,469,775
Horfield	not given	7,520,785
Long Ashton	499,200	18,006,098
Oldland Siston	1,892,376 in total	46,336,433 44,578,552
Stoke Gifford	not given	74,716,291
Winterbourne	not given	98,652,096
Yate	1,451,366	7,972,903

One of the first detailed accounts of the Bristol and Somerset coal industry was written near the end of the pre-statistical era when both districts were described in the report of the Children's Employment Commission. Although the report places great emphasis on the perceived moral and spiritual shortcomings of the colliers, it also provides a useful picture of the working conditions.¹³

There were no women or girls working in the pits, but boys as young as seven were being employed, the youngest operating ventilation doors or assisting with haulage. It was estimated that there were 260 boys

under 13 and a further 400 between 13 and 18 at work in south Gloucestershire. Corporal punishment was found to be common.¹⁴

The wages of boys under 13 were from 2s. to 6s. per week, whilst those between 14 and 18 earned 7s. to 12s. per week, but many of the younger boys were found to be receiving only 3d. or 4d. per day. The adult wage for a full week varied from 18s. to 20s. 15 The working day averaged eight hours at Sir John Smyth's collieries at Coalpit Heath, but at his Bedminster pits ten to twelve hours was usual. 16

The commissioners paid particular attention to the use of the guss and crook, a device consisting of a rope which was worn around the waist, to which was attached a chain and hook which was used to pull a sled (known as a putt) loaded with coal. Elijah Waring, the sub-commissioner for the area, commented that:

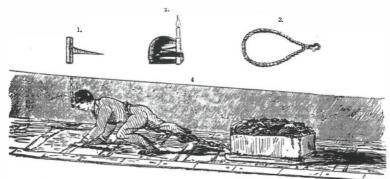
'The mode of tugging tubs with the girdle and chain impressed me so painfully at first, that I was induced to examine closely into its effects on the frame, conceiving it to be a barbarous and unnatural mode of applying muscular power.' 17

After an examination of the physical state of the boys who used the guss and crook, however, he concluded that the situation was not as bad as he had at first feared, the most severe problems being encountered when it was first worn, but:

'When I conversed on the subject with the under-ground manager of Sir J. Smyth and Co., he aptly compared the boys to young horses, whose shoulders are tender when first broken to the collar.' ¹⁸

At the Yate Common pits, where no horses were employed underground, it was found that

'... the smaller boys do not tug more than 1 cwt. at a time; the carts generally hold about 2 cwt. each ...' 19



^{1.} The candle-holder: a socket of iron, having a spike at right angles for the convenience of sticking the light in the

and the pit when stationary. I he spice also forms a name when the signt is carried before them.

A skull-can, having a leather band, into which the candle-holder is thrust when the hands are employed in loco-

^{3.} The girdle and book for attaching to the chain.

^{4.} Represents the position of the girdle.

The use of the guss and crook was to remain a controversial issue for many years after this. An unpublished Home Office report dating from 1913 also concluded that it had no harmful effect, whilst although a Mines Department committee of 1928 acknowledged that the technology was outdated, it could only suggest that the boys should be allowed to use wheeled putts in narrow seams. It is, perhaps, worth noting that the guss and crook remained in use at the worker-owned Marsh Lane colliery at Farrington Gurney until its closure in 1949.²⁰

After 1854: The Scale of the Industry

From the middle of the nineteenth century, the study of the coal industry becomes rather more straightforward with the publication of the first issue of *Mineral Statistics of the United Kingdom of Great Britain and Ireland*, covering 1853 and 1854, and edited by Robert Hunt, Keeper of Mining Records for the Geological Survey of Great Britain. ²¹ *Mineral Statistics*, and the many other official publications dealing with the coal industry which followed, provide, for the first time, reasonable reliable figures for the number of collieries, workers and output and thus enable us to gain some idea of the scale of the industry.

The output of the Bristol coalfield in 1854 was 1,050,000 tons (this figure, however, included the output of the Somerset pits and seems to have been partially estimated) and seventeen pits were listed in Bristol, Bedminster and south Gloucestershire, although it was noted that:

'In addition to the collieries in the list ... there are many small ones; these are worked so irregularly that they can scarcely be estimated \dots '22

A further problem arises because there seem to have been different interpretations of the word 'colliery', with Hunt often counting the various pits of a single company as one. This was recognised as a problem by the report of the Royal Commission of 1871, where official statistics were criticised because 'In some cases a number of pits are returned as one colliery; in other cases, each pit is given as a separate colliery.'²³ Locally, for example, Hunt counts Coalpit Heath as a single colliery from 1854, although Waring, collecting evidence for the Children's Employment Commission in 1841, found that the works consisted of eight pits.²⁴ The problem also occurs in the *List of Mines* which was published annually from the 1880s; in 1895, for instance, Argus and Malago pits at Bedminster are listed separately although they were, in fact, worked as a single concern.²⁵

The question of the size of the collieries is also problematic. It is not possible to classify them by output since there is no single year prior to nationalisation for which the output of every colliery in the area is

known. It is therefore necessary to consider the number of men employed, although even this information is not available for every colliery until the late nineteenth century.

Another official publication, the *List of Mines*, provides details of the number of workers at each colliery from the 1890s onwards, and both Roy Church and Barry Supple have analysed this data for certain years, although using different categories of pit size. ²⁶ Their figures reveal that the majority of collieries employed between 100 and 500 men and the average colliery in the Bristol district was smaller than, although still in the same size bracket as, the national average. ²⁷

It has been suggested that, in 1889, the average colliery employed 600 to 1,000 men and produced 200,000 to 300,000 tons per year. It seems doubtful that any Bristol colliery then employed this many men, since, even by 1895, the largest colliery in the district, Parkfield, had only 426 workers; in view of this, and the fact that 15 collieries produced a total of 337,423 tons, it seems extremely unlikely, to say the least, that any of them produced as much as 200,000 tons.²⁸

It is notable that the large number of very small pits which were characteristic of the earlier phases of the area's history and which were still to be found in the Forest of Dean had disappeared by the end of the nineteenth century; this may, perhaps, be accounted for by the exhaustion of the majority of the seams that could be worked by such undertakings, although some coal was extracted from outcrops at Kingswood, St George and Troopers Hill during the strike of 1926.²⁹

The largest colliery recorded in the *List of Mines* was Kingswood, which had 927 workers in 1913, although it might be argued that it should be regarded as two separate entities, Speedwell and Deep Pit, as had been the case in earlier years; furthermore, its size seems to have borne little relationship to its financial viability, since its owner, Bedminster, Easton, Kingswood and Parkfield Collieries Ltd, was in receivership by the following year.³⁰

It is difficult to know what conclusion to draw from this information. Roy Church has suggested that there was a close relationship between mine size, technology and the depth of pits, with owners sinking fewer and larger pits to keep their capital expenditure to a minimum, although he develops his argument using productivity data for individual pits, a source not available for Bristol.³¹

The first reasonably accurate measure of the number of workers in the coal industry is provided by the censuses from 1841 onwards, although these must be regarded with some suspicion, since not only do they differ from the figures collected by the Inspectors of Mines from 1851 onwards (which are themselves known to be inaccurate), but they also have their own well-known inaccuracies in relation to occupation details.³²

Figure 1 shows the numbers of workers in the Bristol district as a whole and those living within the city itself according to the censuses. The increase in the latter figure can be attributed to the various revisions of the city boundaries rather than any upsurge in mining activity, as the number of pits within the city was declining during this period. The small number of miners shown on the 1951 census presents something of a problem, as there were then no pits in the area and, assuming that this figure does not represent retired men, the most likely explanation is that they were working at Pensford and Bromley, to the south of the city.³³

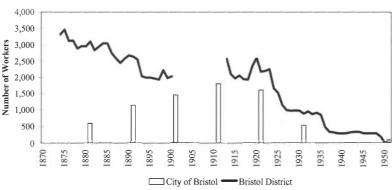


Figure 1: Manpower

As a result of the Mines Regulation Act, more accurate returns were made from 1872 onwards.³⁴ These clearly show that, apart from a period of relative stability from about 1900 to 1920, the labour force in Bristol was in constant decline, a clear sign of the poor health of the industry, bearing in mind that, between 1841 and 1914, the increase in employment in the coal industry was greater than that in any other except domestic service.³⁵

The *Regional Survey Report* noted that, from 1920 to 1938, there was a general decline in employment in the coal industry '... but in few, if any, of the other areas was the reduction so proportionately severe as it was in this coalfield,' although it added that the decline of the number of workers in the Bristol district called for special comment.³⁶

Hunt often fails to give separate output figures for Bristol and Somerset, and in some years he combines them with those for the Forest of Dean to give a single figure for Gloucestershire and Somerset. Separate figures are available for 1860, however, and they show that even at that late date, Bristol's output exceeded that of Somerset by 542,000 tons to 400,000. Some credence may be given to these figures

since they are somewhat similar in scale to those given in the report of the Royal Commission on Coal Supplies in 1905: approximately 532,235 tons for Bristol and 525,000 tons for Somerset. There is still, however, some need to treat the figures with a degree of caution, since the same suspiciously precise estimate is given for Bristol for the years 1870 to 1873, whilst in 1871 Somerset's output leapt to 673,878 tons and from then on it always exceeded that of Bristol.³⁷

Figure 2 shows annual output from 1870 to 1963 and clearly demonstrates that, whilst the output of Somerset follows the trends for the United Kingdom as a whole, that of Bristol shows a continual, albeit gradual, decline. Bristol's output peaked at 571,050 tons in 1875 and then entered a long, slow period of decline, whilst that of Somerset continued to rise until 1916, when it reached 1,241,000 tons. In 1854 the combined output of Bristol and Somerset amounted to 1.62% of the United Kingdom total, but this steadily declined, never exceeding 1% after 1871, and representing only 0.32% by 1946.³⁸

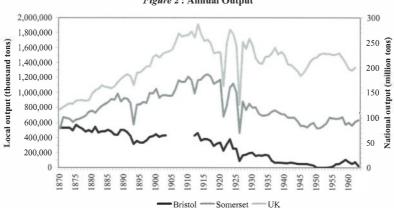


Figure 2: Annual Output

Some Mid-Victorian Views of the Industry

The mid-Victorian period was, essentially, one of guarded optimism for those involved in the coal industry in Bristol. A number of new collieries were under development, the Bristol Mining School had recently been established to train those who aspired to some sort of managerial position and output was at or near its peak. It was against this background that a number of accounts of the coalfield were published which provide us with a rather more detailed picture than the run-of-the-mill annual statistics.

The first of these was the Report of the Commissioners Appointed to Inquire into the Several Matters Relating to Coal in the United Kingdom in 1871. This was the first of a series of Royal Commissions set up to examine the state of the coal industry during the next half-century or so, and its account of Bristol and Somerset is by far the most detailed of them all. The section of the report dealing with Bristol and Somerset was written by Joseph Prestwich, although much of the fieldwork on which it was based was carried out by John Anstie. The thoroughness of their work can be gauged by the fact that, of the eighty pages of the report devoted to the various coalfields of the United Kingdom, thirty-eight deal with Bristol and Somerset; this was supplemented by an independent volume on the geology of the coalfield written by Anstie and published in 1873.³⁹

In considering the future of the industry, the report gave one of the first detailed accounts of the problems that had to be dealt with when working the coal and which have been held largely responsible for its many economic problems. These were listed as:

'1stly. The irregularity in the thickness and character of the coal seams.

'2ndly. The minimum thickness at which the coals are worked.

'3rdly. The waste in working.

'4thly. The interference by water.

'5thly. The interference by gases.

'6thly. The depth to which it has to the present time been found practicable to work the coal.'40

The nature of the seams was probably the most important factor in the viability of a pit, and the fact that most were relatively narrow ensured that the character of the coalfield was somewhat different from its more profitable counterparts in other parts of the country:

'Seams which in the north of England would be considered too thin to be worked are profitably wrought in the Bristol coalfield ... It is fortunately customary in many of the collieries to introduce a clause in the leases rendering it obligatory to work the thin coals ... In the Yate collieries (Gloucestershire) a seam called the 'Little' seam is worked ... The average of this seam is 10 inches. The Golden Valley pit at Bitton presents a remarkable case of a seam only one and a half feet thick being worked at a depth of 1,920 feet.'41

Once a viable seam had been found, however, there could be no certainty of the area over which it extended, and it might suddenly disappear as the coalface advanced:

'In some of the Kingswood collieries, certain seams prove workable; in others, an entirely different set are profitable, but never the whole series ... The greater part of the waste in the Kingswood and Easton districts arises from the deterioration of the seams ...'42

The faults and disturbances which were responsible for such problems were described in some detail by Anstie, who commented that they were

'perhaps more frequent, more singular, and ... more difficult to explain than those of any other coal district in England.'43

Underground water is a constant problem in any coalfield, and when steam-powered pumps were used, profits would be reduced to a certain extent by the resulting consumption of some of the coal produced. The report concluded that the situation around Bristol was not too bad, although,

'... the presence of large bodies of water in the old workings is one of the greatest dangers in the modern collieries of this coalfield ... The Kingswood district is one mass of old workings, without any record for the most part, and all so full of water that the fear of it prevents new trials being made for coal where it has apparently not been worked.'44

Similarly, gas was not thought to be a serious problem since, as the report went on to explain:

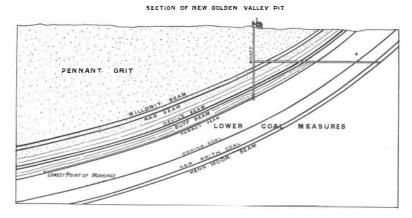
'Few coalfields are so free from firedamp ... In the Yate colliery, it makes its appearance slightly in the 'Hard' seam, but not to any dangerous extent. At Kingswood and Easton the only fiery seams known are the 'Parker's' seams, the lowest proved yet in that district ... At Ashton Vale, neither these same seams, nor those below them called the Ashton seams, possess any gas ...'⁴⁵

These claims were soon to be called into question by a series of explosions across the coalfield: in 1886 eight men were killed at Easton and eleven at Dean Lane, whilst ten died at Malago Vale in 1891 and a further two in 1895. As a result of these incidents, and others in Somerset (Camerton in 1893, Timsbury in 1895 and Norton Hill in 1908) it was realised that airborne coal dust could also cause colliery explosions.

Although safety lamps were used to check for the presence of gas, it was considered so rare that the men usually worked by the light of candles or oil lamps, and when the use of locked safety lamps was made compulsory in some seams at Easton, it proved to be an unpopular measure. Naked lights were still in use at Speedwell until the late 1920s, and when Fred Moss started work there in 1917, he used an oil lamp made from a Brasso tin. Safety lamps were unpopular for several reasons: they gave a relatively poor light and would go out if knocked hard, furthermore, unlike oil lamps and candles which could be attached to a hat, they had to be carried by a handle which often had to be held between the teeth or attached to a strap around the neck, often resulting in burns to the chest. Another possible reason for the unpopularity of safety lamps was that, once naked lights had been banned, smoking was not possible.

The pits were amongst the deepest in the country, and Golden Valley was the deepest in the area, with a depth of 1,920 feet. As Anstie explained,

'... the depth of the shaft is 300 yards, and the deep workings are reached thence by means of: 1st. An incline of 800 yards length, worked from the pit bank by the winding engine; 2nd. An incline of 50 yards length, worked by a wheel and rope; 3rd. Another incline similar to the last, 50 yards in length; 4th. An incline of 60 yards length, up which the 'puts' are dragged by manual labour.'50



Further efforts to exploit the deeper seams soon followed, and by 1881 the lowest levels of the workings at Kingswood were 2,355 feet below ground, whilst by 1891 Malago Vale had reached a depth of around 3,000 feet, probably the deepest workings in any part of the coalfield.⁵¹

The Royal Commission report's main purpose, however, was to assess the area's coal reserves. For each parish in the coalfield, Prestwich and Anstie examined geological maps and colliery plans in an attempt to determine the area of land beneath which seams of coal were to be found, the thickness of the seams and the area from which the coal had already been extracted, and thus the weights of coal removed and remaining. Although they were able to obtain details of 83 collieries, there were many old workings for which no information was available and estimates had to be made:

'The number of pits now open (1868) is 64; whereas the old pits of importance, no longer worked, number 150 ... This does not include the many small and old shallow pits where the coal is near the surface ... Records of a large proportion of the old pits were either not kept or many of them have been lost.'52

Nevertheless, they were able to produce series of figures which were to remain virtually unchallenged for many years and which were to be used by the industry's planners until nationalisation. It was concluded that the total reserves of the coalfield amounted to 6,104,310,982 tons

which could sustain production for something in the region of 6,000 years if the rate of consumption did not increase. The report of the Royal Commission on Coal Supplies, published in 1905, had amended the total to 6,083,600,000 tons (again with 69% at depths to 4,000 feet) which, it noted, 'on the basis of the output of the year 1903 ...' would endure for 2,858 years.⁵³

Whilst recognising the problems of making such predictions, Prestwich commented that there was sufficient coal to make 999 year leases viable, 'beyond which it concerneth not the present'.

Anstie was more openly optimistic about the future prospects of the coalfield, noting that:

'There are rumours of new collieries about to be opened in various parts of the district ... and the railways now in the course of construction, connecting it with Bath and Bristol, cannot fail to give an impetus to the development of a coalfield which has, we believe, been too long neglected.'55

In 1884, W. Morgans, a local mining engineer, produced his own account of the problems facing the industry. Although, on the whole, he also believed that the coalfield had considerable potential, he was rather more sanguine about its future prospects and felt that the complacency and inactivity of the owners were significant problems. The Royal Commission report did not escape his criticism, since, although valuable in some respects,

"... it lacks thoroughness as regards research and conclusions ... and is very deficient both in suggestions and in addressing itself to the problem of how to make the best of things as they are." ⁵⁶

As evidence of the lack of effort put into the exploitation of the resources of the coalfield, he pointed out that, although the reserves of the United Kingdom were thought to be sufficient for 500 years, those of Bristol and Somerset, the sixth largest in the country, were being worked at such a slow rate that they would not, according to his calculations, be exhausted for 4,000 years.⁵⁷

He attributed this lack of effort, at least in part, to the fact that many of the coal-bearing strata were covered by other rocks, although this was less of a problem in the northern part of the coalfield. The fact that the output of the Bristol district exceeded that of Somerset until 1875 tends to support this argument, as does its later decline, suggesting that the resources of the north had been more thoroughly exploited at an early date.

Morgans disagreed with the Royal Commission's views about the problems caused by water. In some strata the problem was particularly bad and was made worse by the inefficient pumping arrangements; he suggested that the total cost of raising 1,000 gallons of water 1,000 feet

should not be more than 2d., but that this could not be achieved due to inefficiency of the equipment in use.⁵⁹ It was certainly true that the Bristol colliery owners were slow to mechanise their pits, and much of the machinery that was in use was very old; at South Liberty, for instance, a Newcomen engine installed in about 1750 was still in use in 1895 and may well have continued working until the closure of the pit in the 1920s.⁶⁰

Bristol, he felt, would have to face increased competition from South Wales as the ports of Cardiff, Newport and Swansea developed. Considerable amounts of coal were already arriving at Bristol from other UK ports: the total rose from 277,284 tons in 1884 to 393,631 tons in 1903 and, after declining somewhat, rose to a new peak of 433,808 tons in 1911; furthermore, large amounts were also arriving at Bridgwater, although this declined from a peak of around 300,000 tons in the early 1880s to 160,937 tons by 1912. The final destination of this coal is uncertain, although it seems more likely that any received at Bridgwater found its way to Taunton and Langport by canal rather than onto the Bristol market.⁶¹

On the other hand, very little coal left Bristol by sea, either for the home market or for export; the total in 1884 was a mere 13,107 tons, and the amount was subject to considerable fluctuations from year to year. Despite this, however, there were those who enjoyed a degree of success in the export trade; according to Morgans, Henry Bennett of Dean Lane colliery had been an exporter for many years and had also met with success in coaling steamers for the Atlantic passage in the face of competition from Welsh coal. 62

It seems that some Bristol coal also found its way eastwards by river and canal, although in 1869, the only year for which figures are readily available, this amounted to a mere 11,994 tons, of which 9,051 tons went to Bath gasworks, with the remainder apparently being distributed via the Kennet and Avon Canal. One over a long period, does Bristol seem to have been a major market for Somerset coal; in 1851 the establishment of a depot for Timsbury coal at Hotwells was regarded as somewhat unusual and the venture had failed by 1860, whilst in 1923 one commentator remarked that, as a manufacturing centre, Bristol had not developed to any great degree in the previous half century, leaving the colliery owners to find markets wherever they could in the neighbouring counties.

Morgans was critical of the railway companies, and particularly so of the Midland Railway which he felt charged Bristol colliery owners an excessive rate for the transport of their coal into the city. The rate for the seven miles from Parkfield was 1s. 0½d. per ton, whilst from Yate it was

1s. 7d. per ton, increasing to 2s. 2d. if the coal was carried to the city docks. Where the distance was over 40 miles, however, the rates were reduced to less than 1d. per ton per mile, enabling the Midland pit owners to sell their coal in the city at a much lower price than would otherwise have been the case.⁶⁵

Similarly, the Taff Vale Railway was only charging 0.74d. per ton per mile for coal carried from the South Wales pits to Cardiff, from where, it must be assumed, much would then find its way to Bristol by sea. Furthermore, following the opening of the Severn bridge in 1879, the Great Western Railway had reduced its rates for Forest of Dean coal, although Morgans felt that the opening of the bridge had not had the disastrous effects for the industry that had been forecast. There was, however, a degree of unease about the possible further inroads that Welsh coal might make once the construction of the Severn tunnel was completed.⁶⁶

It should, perhaps, be mentioned that there were those in Bristol who had business interests in South Wales. Both the Great Western Colliery Company and the Main Colliery Company were based in the city and had several local directors although all their pits were in Wales. George White, the Bristol stockbroker, was a major shareholder in the Taff Vale Railway which served many of the south Wales collieries as was Charles Thomas, the Bristol soapmaker, who was also a director of the Midland Railway.⁶⁷

Morgans reacted to the suggestion that a conflict of interest might arise by proclaiming that:

'People generally will rightly decline to endorse this or any kindred explanation which may be afloat, reflecting on the honour of those who have been and are concerned with the city's interests.' 68

To say the least, this seems to be rather more of an expression of solidarity with the city's business elite than of a recognition of the reality of capitalism.

In the long term, however, Morgans felt that the threat from Welsh coal would recede, since a large proportion of the best coal had already been worked out, and the pits would soon have to rely on inferior seams, thus losing any price advantage and making Bristol coal more competitive. ⁶⁹

The Decline of the Industry

With hindsight, it is clear that the series of pit closures which began in the late 1890s marked the beginning of the end for the industry. Malago Vale closed in 1897, California in 1904, Ashton Vale and Dean

Lane in 1906, Shortwood in 1908 and Easton in 1911. As the British coal industry reached the zenith of its output in 1913, only five Bristol pits remained: Coalpit Heath, Hanham, Kingswood (consisting of Deep Pit and Speedwell), Parkfield and South Liberty.

During the same period there had also been a major reorganisation of ownership. Although Coalpit Heath and South Liberty were unaffected by this, a series of mergers and takeovers had resulted in the rest of the industry falling into the hands of Frank Beauchamp, a man well-known for the ruthless business methods which had enabled him to reopen Norton Hill colliery and turn it into the most productive pit in the coalfield and which were to lead to his acquisition of the majority of the pits in Somerset by the 1930s.

Beauchamp's business skills were of little use to him in Bristol, however, and he was forced to close Hanham in 1926 and, faced by geological problems, Kingswood and Parkfield in 1936. As South Liberty, the last of the Bedminster pits, had closed in 1925, Coalpit Heath was now the only pit north of the Avon.

There was, however, still some cause for optimism. Addressing the Bristol Rotary Club in December 1929, Daniel Jones, the manager of Kingswood collieries, had claimed that

'... new sinkings in this area would, in my opinion, be capable of producing coal as economically as in any other part of the country ... There are at least six sites in the suburbs of Bristol where modern shafts could be sunk and large outputs obtained ...'⁷⁰

Such optimism may have seemed justified in the light of the reserves identified by the Royal Commissions, some 1,335,000,000 tons of which were thought to lie beneath Bristol and the surrounding parishes (see Table 1 on page 5).

The Regional Survey Committee, which reported on the state of the coalfield in the period leading up to nationalisation, felt that insufficient research had been carried out since then to enable them to provide any more accurate estimate. Both the Regional Survey Committee and the Fuel Research Coal Survey did, however, attempt to provide estimates of the reserves available to the collieries then in production throughout the coalfield which, they concluded, amounted to only 5% of the total reserves (7% of the reserves at depths of less than 4,000 feet), as estimated in 1905.⁷¹

With reserves of 1,182,000 tons, not all of which was workable, Coalpit Heath was thought to have a further nine years of life. In fact, however, the colliery closed in 1949, possibly in part at least as a result of the increased burden placed on its pumps by water from the abandoned workings at Parkfield.⁷²

The *Regional Survey Report* had tentatively suggested that there was scope for the sinking of new pits in the areas around Avonmouth, Warmley and Winterbourne. After nationalisation a number of boreholes were drilled and two seams, each five feet thick, were indeed discovered at Avonmouth, but no action was taken to exploit the discovery.⁷³

In 1950, however, it was reported that a new colliery was to be opened on the northern outskirts of Bristol. According to the *Evening Post*, it would be one third of a mile deep and might well produce all the coal needed locally, whilst a spokesman for the South-West Regional Hospital Board claimed that it had proved necessary to reconsider plans to build an eight-storey nurses' home at Frenchay Hospital as the National Coal Board was planning to extract coal from beneath the site.⁷⁴

Initially, the new Harry Stoke colliery was to be a drift mine, although it was planned to sink shafts and enlarge it later. The exact date at which work began is unclear, but by the end of 1954 £300,024 had been spent and the mine was producing coal. Output reached a peak of 108,193 tons in 1959, but after geological problems arose, this level of activity could not be sustained and the colliery closed in June 1963.⁷⁵

The closure of Harry Stoke marked the end of mining in the Bristol area. There were still a number of pits at work in Somerset, mostly in the Radstock area, but the industry was in decline here too, the victim of a shrinking market for coal and competition from larger and more efficient pits elsewhere. With the closure of the last pits, Kilmersdon and Writhlington, in September 1973 the Bristol and Somerset coalfield finally ceased work.

Today there are few visible signs that Bristol was ever a mining community, but it is interesting to reflect on the fact that demand for coal in Britain is still strong enough to require the reopening of the Portishead railway line to cope with the large quantities being imported through the Royal Portbury Dock.

APPENDIX 1: THE MAJOR COLLIERY OWNERS IN THE BRISTOL AREA

Ashton Vale Iron Company

The Ashton Vale Iron Company Limited was registered on 17 June 1864 as the successor to a series of partnerships which included Baynton, Knight and Co., Knight, Abbots and Co. and Edwin Knight and Co. The first directors were:

Henry Abbot, Abbot's Leigh, Somerset, Gentleman

Edward Bush, Clifton, Engineer

Thomas Porter Jose, Royal York Crescent, Clifton, Esquire

Edwin Knight, Long Ashton, Colliery Proprietor

John Lucas, Redland, Merchant

William Henry Miles, Ham Green, Somt, Esquire

John Lum Stothert, Bath, Engineer

Thomas Terrett Taylor, Stoke Bishop, Merchant

Archibald Vickers, Clifton, Gentleman

Robert Charles Ward, Bristol, Merchant.

The directors were empowered to purchase the leases of the Ashton Vale Colliery and Iron Works at Long Ashton, the Hopewell Iron Stone Pits at Kingswood and the buildings, machinery and plant of Edwin Knight and Co. ⁷⁷ At its peak the company owned Ashton Vale and South Liberty collieries, iron mines at Ashton Vale and Ashton Hill and a brickworks at South Liberty in addition to its iron works. ⁷⁸

By the end of the nineteenth century, however, it seems to have been in decline. The ironworks appear to have closed in about 1893, followed in 1906 by Ashton Vale colliery. South Liberty closed in 1925, bringing the company's involvement in the coal industry to an end, although it continued in business as a brick and tile manufacturer on the same site for a number of years. By 1963, however, production had ceased and the plant was put up for sale.⁷⁹

The directors of the company seem to have been particularly active in local politics; between 1868 and 1904, Henry Napier Abbot, William Wilberforce Jose and William Henry Miles all served as Conservative members of the City Council, with one of them always in office at any time between those two dates. Furthermore, it is possible that the company's influence was even greater, since various other councillors shared the names of directors of the company but cannot be identified with any degree of certainty.⁸⁰

Bedminster Coal Company

The earliest record of the involvement of the Bennett family in mining at Bedminster is in the 1740s when a survey was carried out

which proved that the seams worked at Kingswood were also to be found to the south of the Avon. As a result of this the Bennetts went into partnership with the Smyth family of Ashton Court to form the Bedminster Coal Company which was responsible for the sinking of South Liberty colliery in 1748.⁸¹

The family's mining activities were confined to the Bedminster area until the mid-1890s, when they acquired the pits formerly owned by Leonard, Boult and Co. Ltd. A new company, Bristol United Collieries Ltd, was formed, although the business seems to have continued to trade as the Bedminster Coal Company.⁸²

In 1888 the company was granted permission to work the coal under the New Cut, resulting in the statistical anomaly of coal from beneath Gloucestershire being included in the figures for Somerset. Despite this expansion of the area worked, Dean Lane's reserves were running low and the pit was forced to close in 1906, following which the land occupied by the colliery reverted to the possession of the Smyth family and was converted into a park.⁸³

Bedminster, Easton, Kingswood and Parkfield Collieries Ltd

On 24 May 1900 Handel Cossham's collieries were auctioned, the main lot consisting of Speedwell, Deep Pit, Parkfield and South Pit, together with the mineral rights to 2,420 acres. ⁸⁴ The properties were sold for £61,000 to Cuthbert R. Morris, an auctioneer and estate agent from North Curry, acting as agent for the Bennetts whose new company, Bedminster, Easton, Kingswood and Parkfield Collieries Ltd, is recorded as the owner in the *List of Mines* for 1900. ⁸⁵

The scale of the business declined rapidly over the next few years, Dean Lane being abandoned in 1906 and Easton in 1911. By 1914 the company was in receivership and the remaining collieries were then bought by the Beauchamp family.

Handel Cossham

Handel Cossham was born in Thornbury in 1824, the son of Jesse Cossham. The family, it has been claimed, had owned land and property in the area, but most of this had been lost.⁸⁸

Cossham's involvement in the coal industry dates from 1845 when he began work at Yate colliery, although his exact position in the business is unclear. In 1848 he married Elizabeth Wethered, and in 1850 formed a partnership with her father, William, her brothers, Joseph, Henry and Edwin, and J.P. Bendall with the intention of developing a site at Pucklechurch that was eventually to become Parkfield colliery. The source of the Wethereds' capital is unknown, but since they came from

Little Marlow in Buckinghamshire, it is possible that they were members of the well-known local brewing family. It has proved impossible to identify Bendall with any degree of certainty.

The most prominent member of the Bristol family was Joseph Wethered, who has been categorised by Charles Harvey and Jon Press as one of an ambitious group of Bristol capitalists 'united in their desire to increase their wealth and power,' who were among the associates of George White. Wethered's business interests outside his partnership with Cossham included a zinc smelting plant in Bristol (although this was last listed by Hunt in 1875), the Bristol Tramways Company and directorships of the Bristol and North Somerset Railway and the Netham Alkali Works. He was also a director, and from about 1885 chairman, of the Great Western Colliery Company; the company owned collieries in South Wales and Wethered's directorship is the only evidence found of the involvement of a local coal owner in another mining district.⁹⁰

It is a measure of the shortage of primary source material relating to the industry that one of the most substantial surviving records is a pocket notebook belonging to Cossham which records the early development of Parkfield. Work seems to have begun in April 1851, and initially coal was produced at Cook's Pit and Shortwood, whilst another pit was being sunk. The notebook lists eleven pits in the area, but it is unclear which, if any, of these were incorporated into Parkfield; Hunt's list for 1854 includes Parkfield plus one of the other eleven, Brandy Bottom, (although that was then being worked by Jefferis, Walters and Co.), whilst omitting Cook's Pit and Shortwood altogether.⁹¹

The notebook only covers the period from April 1851 to September 1853, during which time the total expenditure on Cook's Pit, Shortwood and the new pit was £28,698, whilst the income from coal raised at the first two was £26,146, the great majority of which came from credit sales.⁹²

In 1863 the partnership acquired Speedwell and Deep Pit at St George, this part of the business initially being run by Cossham and Wethered Ltd, and from 1867 by the Kingswood Coal and Iron Company Ltd. ⁹³ In 1878 or 1879 Kingswood and Parkfield Colliery Company Ltd was formed to acquire the Wethereds' interest, the business subsequently passing into the control of Cossham and Charles S. Wills (a member of the tobacco family and the brother of Edward Payson Wills who was chairman of the Bristol Colliery Company Ltd, owners of Malago Vale colliery). ⁹⁴

Cossham also had political ambitions; a Liberal, he represented the St Paul's ward on Bristol City Council for some years during the 1860s, before moving to Bath where he also served on the council and was

mayor in 1882-3 and 1884-5.95 He stood for Parliament at Nottingham in 1866, Dewsbury in 1868 and Chippenham in 1874, before finally being elected as member for Bristol East in 1885 and 1886.96

In 1890 he collapsed in the House of Commons and died the following day. The *Bristol Times & Mirror* estimated that some 30,000 people took to the streets on the day of his funeral and noted with some disapproval that:

'Unfortunately, many of these allowed their curiosity to overcome their feelings of respect and reverence for the dead, and scenes were consequently enacted which everyone must deeply regret ... their boisterous conduct in the graveyard itself, which rendered it necessary for a solemn service to be gone through with undignified haste, was inexcusable.'97

Cossham's estate amounted to £59,127 and was left in trust to his wife for her lifetime, after which the collieries were to be sold and the proceeds used to pay for the building of a hospital 'in or near Kingswood Hill'. 98

When the collieries eventually came up for auction on 24 May 1900, the prospectus announced that the mineral rights for Speedwell and Deep Pit covered an area of 1,600 acres, all freehold. The two pits employed over 600 hands and during 1899 Speedwell had produced 54,000 tons and Deep Pit 77,000 tons. There was also a coke works with 24 ovens at Deep Pit. The pits held contracts to supply the Midland Railway, the Somerset and Dorset Railway, the Bristol Guardians and Christopher Thomas Bros Ltd.⁹⁹

There were 400 acres of freehold mineral rights at Parkfield and another 420 acres leasehold, much of the latter being held under lease from Sir John Smyth and C.E.H.A. Colston, the proprietors of Coalpit Heath colliery. Nearly 400 hands worked here and the pit produced some 79,000 tons in 1899. Parkfield held contracts to supply Bristol Gas Company, Bath Gas Company and Weston-super-Mare Gas Company. 100

The collieries were bought for £61,000 by Cuthbert R. Morris, an estate agent and auctioneer who was acting as agent for the Bennett family. 101

East Bristol Collieries Ltd

East Bristol Collieries Ltd, formed in 1914 to acquire the remaining pits of Bedminster, Easton, Kingswood and Parkfield Collieries Ltd, was controlled by Frank Beauchamp, the major colliery owner in Somerset. This was not, apparently, the family's first foray into the Bristol district, since Zebedee Beachim, who seems to have been Frank Beauchamp's grandfather, had owned Malago and Northside collieries at Bedminster during the 1850s.¹⁰²

Frank Beauchamp was a pillar of the establishment: a magistrate, a Conservative member of Somerset County Council from 1907 to 1946 and a Parliamentary candidate in 1910. In May 1915 he joined the army and, after eighteen months in Britain he was sent to the USA in what was described as 'an advisory capacity' to the War Department in Washington. He reached the rank of colonel and was created a baronet in 1918 and awarded the CBE in 1919. 103

Sir Frank's business interests were centred on Radstock, and he owned a number of collieries in the area, as well as a coal distribution business, a wagon works and a gasworks. In 1925 he incorporated a number of these businesses in a new company, Somerset Collieries Ltd. In 1935 the company was renamed Radstock Collieries Ltd and in December of that year a new public company named Somerset Collieries Ltd was formed to acquire the assets of the old company and the remainder of Sir Frank's Somerset businesses.¹⁰⁴

The Bristol pits had not been included in either of these amalgamations and East Bristol Collieries Ltd continued to be run as a separate company, the directors of which were Sir Frank and his son, Ian. ¹⁰⁵ The businesses may well have been kept separate in anticipation of future problems, since the Bristol collieries had been in trouble for some years, and Hanham had been forced to close in 1926. ¹⁰⁶ On 3 January 1936, Charles Gill, the agent of the Bristol Miners' Association wrote to his Somerset counterpart, Fred Swift, that

'... we are "full of troubles." At one of Sir F's pits about 120 men were discharged due to water troubles, and now in the other pit, in the two foot seam that the public fund was raised for in 1933 water has broken in and about 40 men are discharged there ...' 107 The next day Swift replied that he had spoken to Sir Frank and that '... he told me that he had decided to close his Bristol pits, as during the last few years he had lost at these pits £20,000 and he was not prepared to go on losing ...' 108

The public fund referred to is also mentioned by Fred Moss, who claims that it was set up by the Lord Mayor. The precise details of this are uncertain, since it is not mentioned in the minutes of the City Council or in the index of documents held by the Bristol Record Office, but it seems remarkable that a company should be subsidised by public subscription in this way, particularly in view of the funds which must have been available from Sir Frank's other businesses.

Sir Frank had, in fact, threatened to close the pits in 1925 when faced with the threat of a strike but on this occasion he was not bluffing and Kingswood closed in February 1936, followed in August by Parkfield. As Fred Swift observed, 'Sir Frank can always be ugly, but I know that

he or no one else will carry on in business if the balance is always on the wrong side.'111

Leonard Boult & Co.

The firm of Leonard, Betts & Boult was first mentioned in *Mathews's Directory* for 1833, where they were listed as the proprietors of Lower Easton Colliery. By 1836 the firm's name had been changed to Leonard Boult & Co., although it seems to have traded as the Easton Coal Company.¹¹²

The firm was based at Easton where there were initially two collieries, one owned by Davidson and Walters, and the other by Leonard, Betts and Boult. The two firms either went into partnership or merged to form the Easton Coal Company, after which Leonard, Betts and Boult's pit closed, the other then becoming known as Easton colliery.¹¹³

The business expanded during the middle of the nineteenth century; Whitehall colliery was sunk during the 1860s and was linked underground to Easton, and Hanham colliery was acquired in 1872. By 1888 the company had also acquired Pennywell Road colliery which lay close to Easton, although by the following year the *List of Mines* noted that it was being used solely for pumping and ventilation.¹¹⁴

Leonard Boult and Company Ltd was registered on 24 December 1879 with authorised capital of £70,000 in shares of £25, £47,500 of which had been subscribed and fully paid by 13 October 1884, with debentures of £12,000 later being issued. As the company was a private one, no accounts or reports were published, but *The Stock Exchange Year-Book for 1894* noted that it was being wound up.¹¹⁵

The company seems to have been family-controlled, since the directors included, at various times, several members of the Leonard and Monks families (who were, it may be assumed, related, since one of their number was William Boult Monks). The difficulties of interpreting the official lists of mines and their owners is illustrated by the fact that it has not proved possible to ascertain whether the firm had any connection with the partnership of Leonard, Jefferies and Company, which ran Bull Hall and Hole Lane collieries or with Edward and John Monks of Lodge colliery. 116

The Smyth Family

The Smyth family of Ashton Court seem to have become involved in mining at Bedminster in the middle of the eighteenth century. They were still directly involved in the industry in 1841, when the Report of the Children's Employment Commission noted that 'The Bedminster

collieries are conducted by "Sir John Smith & Co." It is not certain when the Smyths withdrew from the business, but by 1876 the owner is listed as H. Bennet; they continued to receive royalties, however, and when Dean Lane colliery closed, the land reverted to them. The family also owned royalties at Pucklechurch and Nailsea and may have been actively involved in mining at the latter.¹¹⁷

The Smyth family's major interest in the coal industry, however, was at Coalpit Heath. The precise details of the ownership of the pits are unclear, but there seems to have been a partnership between one or more of the Smyths and Charles Edward Hungerford Atholl Colston, a descendant of Edward Colston's sister, Mary, who was created Baron Roundway in 1916. 118

A limited company, the Coalpit Heath Company Ltd, was eventually formed with the names Smyth and Roundway included amongst the directors. Although the family's shareholding is not known, it is clear that they managed to maintain an active interest in the business until nationalisation.¹¹⁹

APPENDIX 2: TRADE UNIONS

In view of the central role which trade unions have played in the coal industry, their omission for this account is a serious one. Once again this is due to a lack of records and it is only possible to give the briefest of details of the story.

According to Morgans, the only union in the coalfield was based in Radstock. It is not clear what union he was referring to, since the date of foundation of the Somersetshire Miners' Association has been claimed as both 1872 and 1888; the union's own records do nothing to shed further light on the subject, since the earliest documents in the collection date from 1889. 120

Unionisation in the Bristol area seems to have begun slightly later than in Somerset, the Bristol Miners' Association having been founded in either 1887 or 1889, although the latter date seems more likely, as a newspaper article dated 26 April 1890 stated that William Whitefield, the union's first agent, had arrived in Bristol from Northumberland ten months earlier. ¹²¹

In 1894 the BMA joined the Forest of Dean Miners' Association and the Somerset Miners' Association to form the South Western Counties Miners' Federation. The Federation seems to have been relatively loosely organised, with the constituent unions retaining virtually total independence. It was dissolved in 1904. 122

The only available membership figures for the BMA show that it had 3,035 members in 1892, 2,167 in 1910 and 320 in 1945. Although official statistics show only 2,558 workers in the Bristol district in 1892, the number given may be correct, as the BMA recruited members from the Bedminster pits which were regarded as being in Somerset for statistical purposes.¹²³

From the earliest days of the BMA, its agents were active in local politics. Following the death of Handel Cossham in April 1890, William Whitefield found his name being put forward as prospective Liberal Parliamentary candidate for Bristol East although he was unable to gain enough support to secure the candidature. He was, however, to have more success at a local level, representing St George East on Bristol City Council from 1906 to 1919 and then serving as an alderman until 1929. 124

Whitefield's successor, Charles Gill, was born in 1871 and started work as a carting boy at South Liberty in 1882, eventually becoming an overman. By 1903 he was treasurer of the BMA and when Whitefield retired in 1921 he became the agent. Gill was also a member of the City Council, representing Bedminster West from 1922 to 1931, Bedminster East from 1933 to 1936 and Windmill Hill in 1936, being elevated to the aldermanic bench immediately after the latter election and remaining there until his death in 1956. During his period of office as an alderman he was also elected Lord Mayor in 1947 and 1948. ¹²⁵

By 1937, with only one colliery left in the Bristol district, Charles Gill was forced to accept a reduction in his salary. An appeal from the Miners' Federation of Great Britain for funds to supplement a grant which it had made to him met with no response from the Somerset Miners' Association in view of the adverse financial circumstances of its own members as a result of pit closures. ¹²⁶ In 1945 the BMA was absorbed into the National Union of Mineworkers which replaced the MFGB.

A number of other local unions (Bristol and District Colliery Overmen and Examiners' Association, Somerset Bailiff and Examiners' Association, Somerset Colliery Enginemen and Boilermen's Union and Somerset Miners' Industrial Union) are known to have existed, but no details of the nature and extent of their activities have survived.¹²⁷

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